



State Workforce Development Board Manufacturing Committee

Tuesday, June 7th, 2022

1:00 pm – 2:00 pm

Agenda

Review Data

Decide top three priority areas

Brainstorm ways to

- **Improve priority areas**
- **Measure success**
- **Potential goals**

Abby & Tori Develop Road Map to goals & Execution Plan + Decision Points

Disclaimer - Sources

This is not data collected
by the SWDB

Sources include:

- Vermont Talent Pipeline Management
- UVM Office of Engagement
- Vermont Agency of Education

Establishing Employer Need:

The term “critical roles” indicates the hardest to hire, and/or most needed. The following critical roles are identified:

- Production Operators and Assemblers
- Equipment Maintenance Technicians
- CNC Machinists
- Team Leaders
- Engineers
- Welders/Solderers

CRITICAL JOB FORECAST AUG 2021-AUG 2023

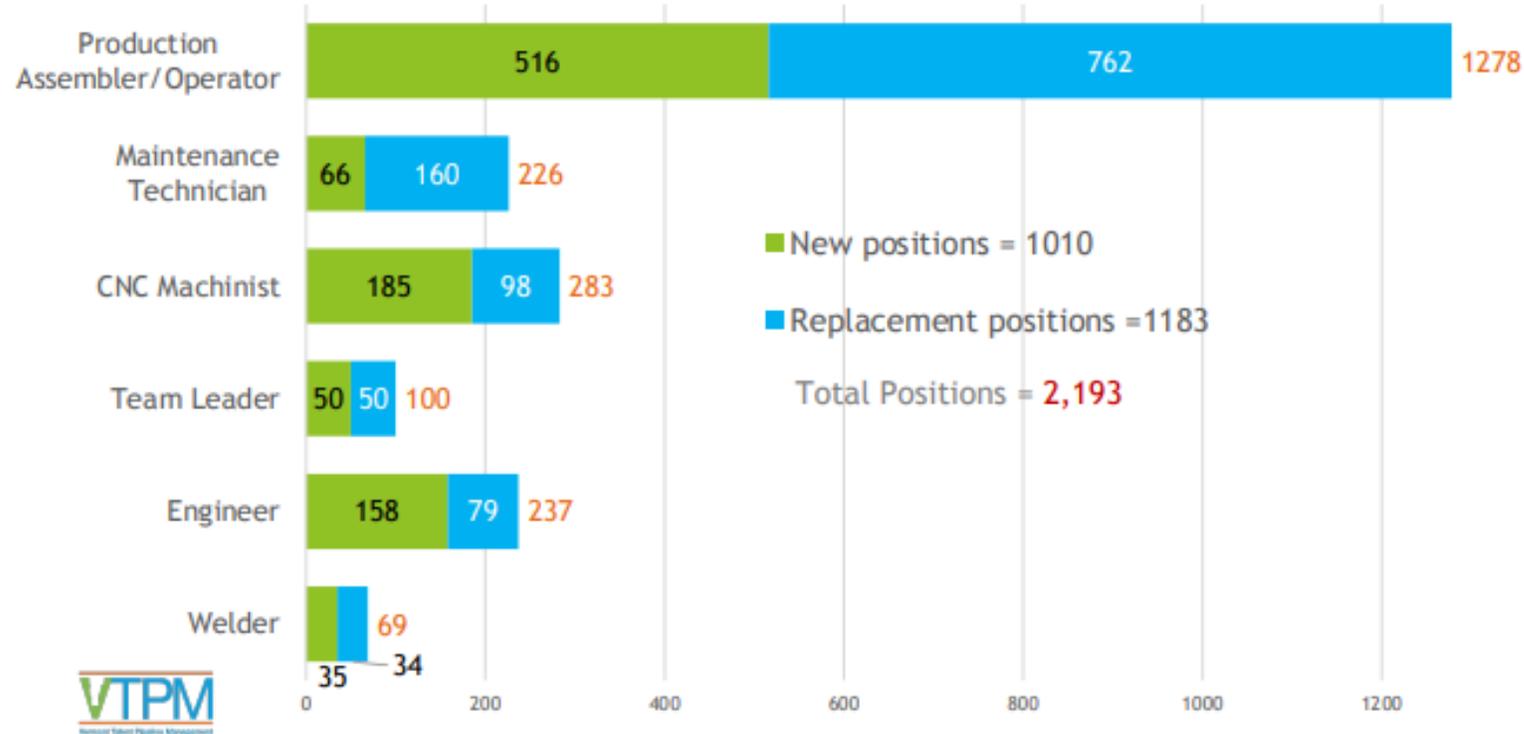


Figure 1. Manufacturing critical job forecast (Aug 2021 - Aug 2023) from 45 Vermont employers.

- 2193 jobs are forecast in the next two years among 45 manufacturing employers (mean = 49)
- 46% (1010) of these jobs represent new hires due to industry growth
- 54% (1183) of jobs represent replacement hires for leaving employee positions

Employer Competencies – Common Elements

1. There's a lack of career awareness and exploration that generates interest in high-wage skilled manufacturing careers.
2. Each critical job requires employability skills as a threshold for career entrance.
3. A pandemic combined with an aging workforce results in higher than normal numbers of retirements, leaving a gap in skills for technician- and middle-level roles.
4. The housing shortage and high cost of living makes it hard to attract new workers to Vermont. Some employers have been forced to hire temporary contracted services from outside the state.
5. Wrap around support services for entry-level workers will help attract new and diverse candidates, which is seen as a positive strategy.
6. Apprenticeships represent an opportunity to invest in employees' career entry and advancement, filling entry level roles while preparing for the next level within a career ladder.
7. Flexibility has become the leading request among new hires, yet not all employers can adjust scheduling to meet the demand particularly on the front line.

Common Needs Pt. 2

Employability Skills

Preferred High School
Technical Education

Certified Production
Technician Training

Critical Occupation Competencies

- Production operator
 - Certified Production technician
 - Lean Six Sigma
- Equipment Maintenance Technician
 - Certified Production Technician
 - NIMS industrial technology Maintenance Certification
 - Total Productive Maintenance Certification
- CNC Machinist
 - Certified Production Technician
 - NIMS Machining Level 1
 - NIMS Machining Level 2
- Team Leader
 - Certified Quality Improvement Associate
 - Lean Six Sigma
 - Lean Certification (Bronze)
 - Certified Production Technician
- Engineer Product/Design
 - Geometric Dimensioning and tolerance
 - Auto CAD Certified
 - SolidWorks Certified
 - Statistical Process Control
 - Certified Manufacturing Engineer

Feeder Pools

K-12

CTE

Post-Secondary

Training Programs

pre-K through 12

- -Since school year 2003-2004, public pre K-12 student enrollment in Vermont has declined from 93,202 to 80,488 students in school year 2021-2022.
- -[Vermont Education Dashboard: Enrollment | Agency of Education](#)
- -school year 2022 = 74,341
- -school year 2021 = 73,711
- -school year 2020 = 75,925
- -school year 2019 = 75,852
- -school year 2018 = 77,870
- -school year 2017 = 71,842

K-12 System Graduates

- **the cohort graduate rate is calculated by tracking the students from the time they enter grade nine, students who graduate within four years are considered on-time graduated, students who graduate one or two years later are included in the five to six year graduation rates
 - Percentage [Vermont Education Dashboard: Student Information | Agency of Education](#)
 - 2021 Four-year 83.10%
 - 2021 Six-year 87.00%
 - 2020 Four-year 83.00%
 - 2020 Six-year 88.30%
 - 2019 Four-year 84.50%
 - 2019 Six-year 91.60%
 - 2018 Four-year 85.09%
 - 2018 Six-year 90.54%

CTE Headcount – 9th & 10th Grade

The figures below show the 9th/10th and 11th/12th grade CTE student count against the count of students in general education, as well as these same data as percentages and participation rates. The reader will notice a decline of the total student population in the state over 13 years, while during the same period students are participating in CTE at increasing rates.

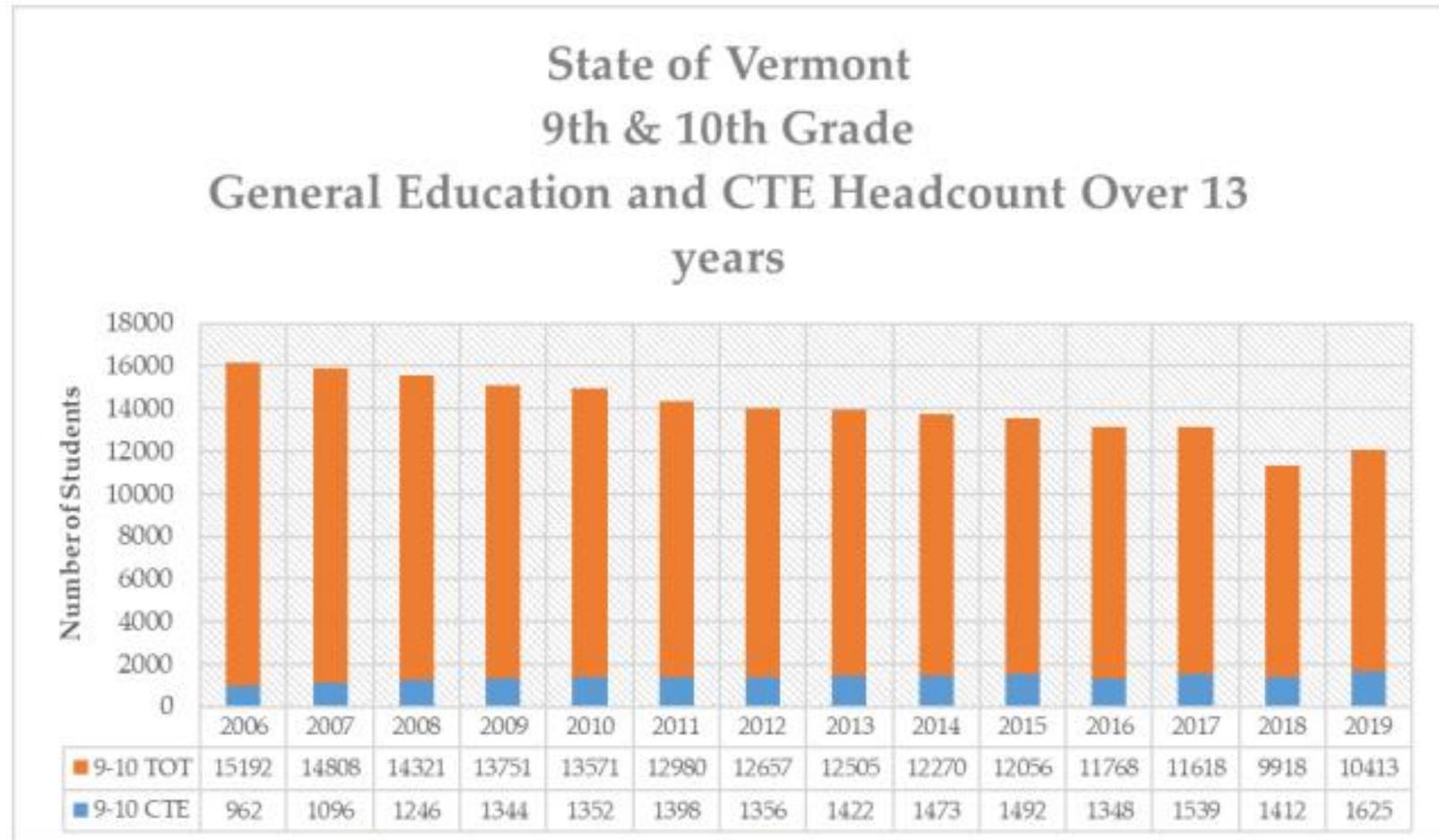
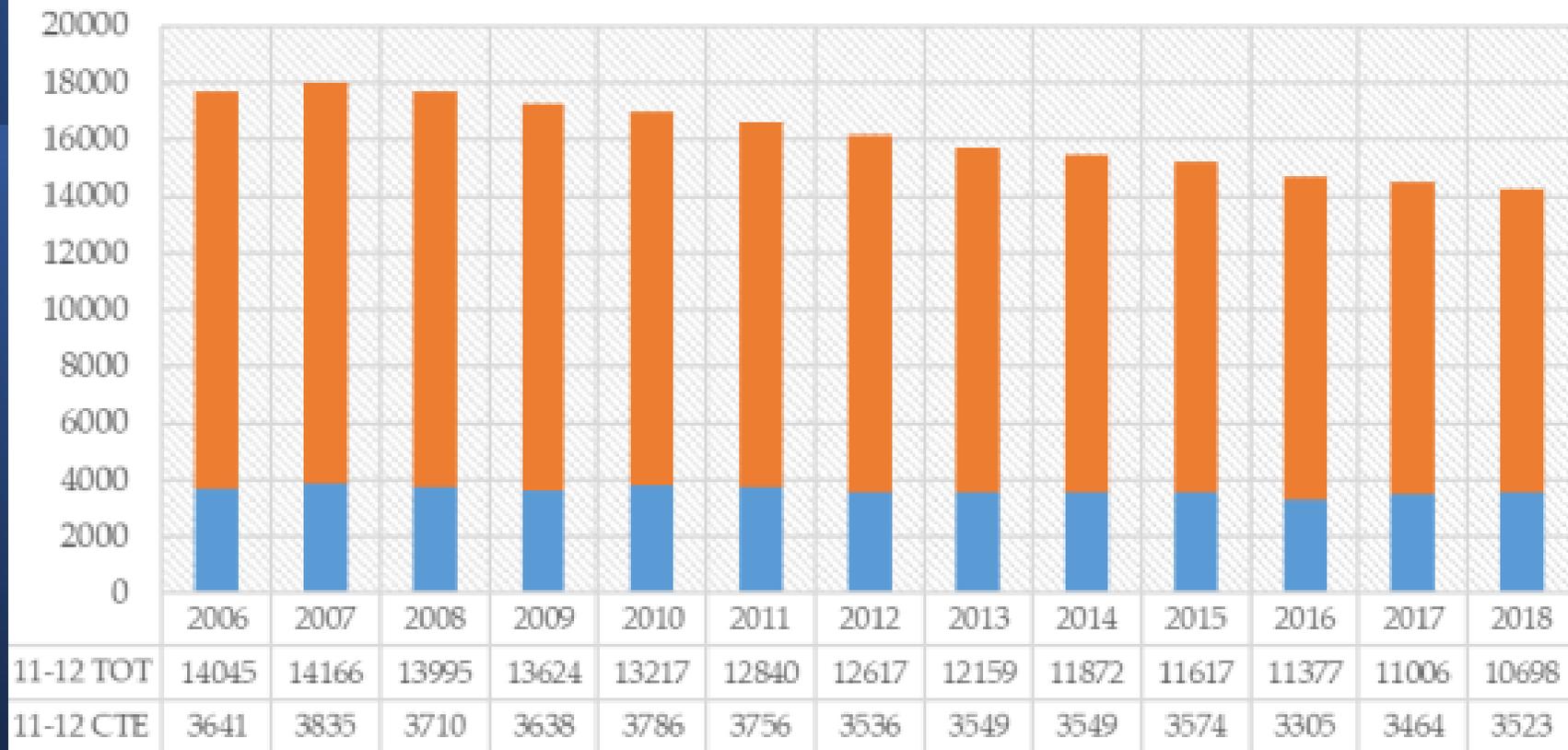


Figure 3: 9th & 10th Grade CTE Headcount compared to General Education headcount from 2006 to 2019.

CTE Headcount – 11th & 12th Grade

State of Vermont 11th & 12th Grade General Education & CTE Headcount Over 13 years



5: 9th & 10th Grade CTE Headcount compared to General Education headcount from 2006 to 2019.

Career Technical Education

Burlington Technical Center (Burlington)

Central Vermont Technical Center (Barre)

Cold Hollow Career Center (Enosburg Falls)

Essex, Center for Technology (Essex Junction)

Green Mountain Tech. & Career Center (Hyde Park)

Hartford Career & Tech Center (White River Junction)

Lyndon Institute (Lyndon Center)

North Country Career Center (Newport)

Northwest Technical Center (St Albans)

Patricia Hannaford Career Center (Middlebury)

Randolph Technical Center (Randolph)

River Bend Career & Tech Center (Bradford)

River Valley Technical Center (Springfield)

St. Johnsbury Academy (St. Johnsbury)

Stafford Technical Center (Rutland)

SW VT Career Dev. Center (Bennington)

Windham Regional Career Center (Brattleboro)

Training Infrastructure

- CCV
- VTC
- Advanced Welding Institute
- Technical Centers
- Norwich
- St. Michaels
- UVM
- ReSource
- VT HITEC
- VEMC

Certified Production Technician

STEM Studies

Manufacturing Production Technician

SolidWorks & CNC Machining

Industrial Maintenance

Advanced Manufacturing

Maintenance Technician

Civil & Environmental Engineering Technology

Manufacturing Engineering Technology

General Engineering Technology

Mechanical Engineering Technology

Many trainings

Welding & Metal Fabrication

Advanced Manufacturing/Engineering

Engineering & Architectural Design

Welding & Metal Fabrication

S.T.E.M.

Welding Many Trainings

Aviation & Aerospace Technology

Engineering; Civil Engineering; Mechanical Engineering

Engineering; Civil Engineering; Industrial Engineering; etc.

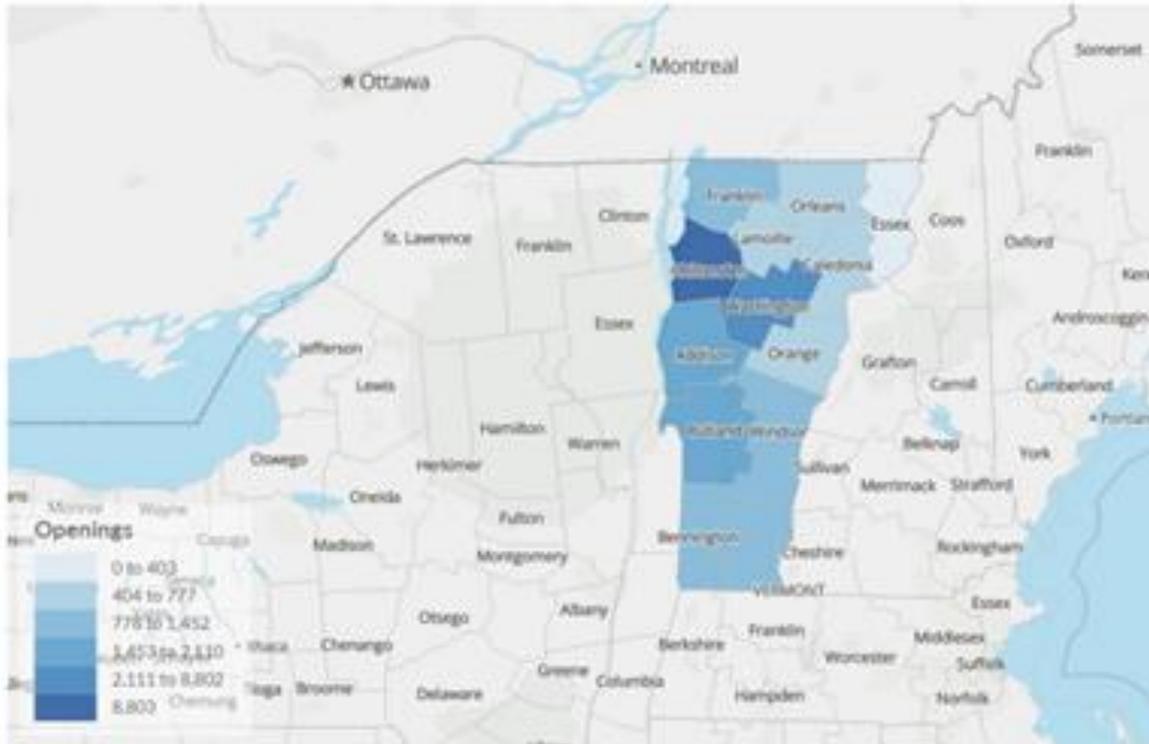
Engineering

Advanced Manufacturing

Logistics

Machine Operator Certificate Program

Engineering Degrees



County	County Name	Openings	Annual Openings	All Programs > All Completions > 2020 Completions	All Programs > All Completions > % Completions Change (2010-2020)	2021 Jobs	2010 Jobs	2020 Jobs	Jobs Change	% Jobs Change
50013	Grand Isle	57	6	0	0%	43	60	38	-22	-37%
50009	Essex	62	6	0	0%	44	39	43	4	10%
50019	Orleans	404	40	0	0%	330	335	320	-15	-4%
50999	[Vermont, county not reported]	464	46	0	0%	357	312	331	19	6%
50017	Orange	503	50	15	0%	385	400	405	5	1%
50015	Lamoille	532	53	0	0%	425	423	405	-18	-4%
50005	Caledonia	533	53	0	0%	428	558	425	-133	-24%
50003	Bennington	778	78	0	0%	632	809	641	-168	-21%
50011	Franklin	867	87	0	0%	651	664	681	17	3%
50025	Windham	953	95	0	-100%	728	1,076	731	-345	-32%
50027	Windsor	1,128	113	0	0%	1,083	1,156	1,035	-121	-10%
50001	Addison	1,453	145	0	0%	1,279	1,129	1,207	78	7%
50021	Rutland	1,578	158	0	0%	1,267	1,307	1,268	-39	-3%
50023	Washington	2,111	211	95	16%	1,858	1,736	1,834	98	6%
50007	Chittenden	8,803	880	236	54%	8,270	7,678	8,166	488	6%
		20,225		346	38%	17,780	17,681	17,530	-151	-1%

The above graphic provides insight into job openings in Engineering in the fourteen Vermont counties between 2010-2020, and the program completions in Engineering in Vermont in that same timeframe. Changes in jobs and completions over that ten year period are also provided. Figure 7 includes breakdowns of degree completions by institution between 2016-2020. Figures 8 and 9 provide insight into the top companies posting for jobs for engineering graduates, and data on the target occupations of those students.

Engineering Degrees Pt. 2

Completions by Institution

Institution	Completions (2020)	Growth % YOY (2020)	Market Share (2020)	IPEDS Tuition & Fees (2020)	Completions Trend (2016-2020)
University of Vermont	232	-1.3%	67.1%	\$19,062	
Norwich University	95	30.1%	27.5%	\$42,950	
Vermont Technical College	15	0.0%	4.3%	\$16,044	
Saint Michael's College	4	-33.3%	1.2%	\$48,175	

Pipeline Visualization

Manufacturing Career Ladders

An Advanced Manufacturing Career Ladder (Figure 4) demonstrates how some manufacturers are investing in training to promote employees from feeder positions. The salaries below represent the Vermont averages as of May 2020, provided by the Bureau of Labor Statistics. Employers recognize that hiring demand has increased since May 2020, driving entry- and mid-level wages up, in some cases 20% above 2020 averages.

Figure 4. VTPM Manufacturing career ladder

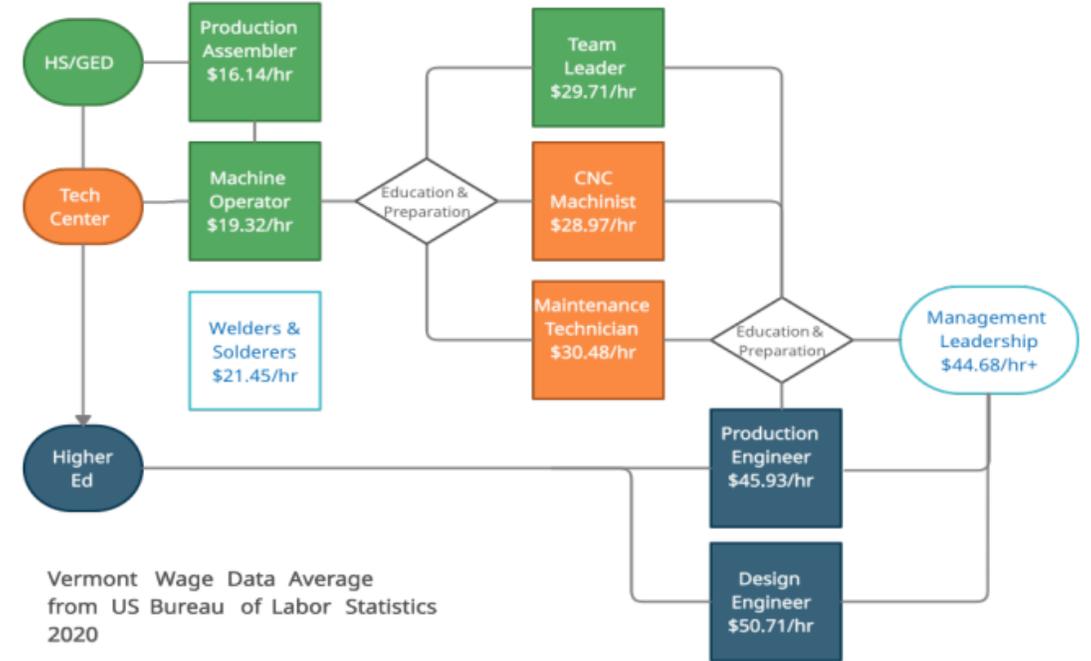
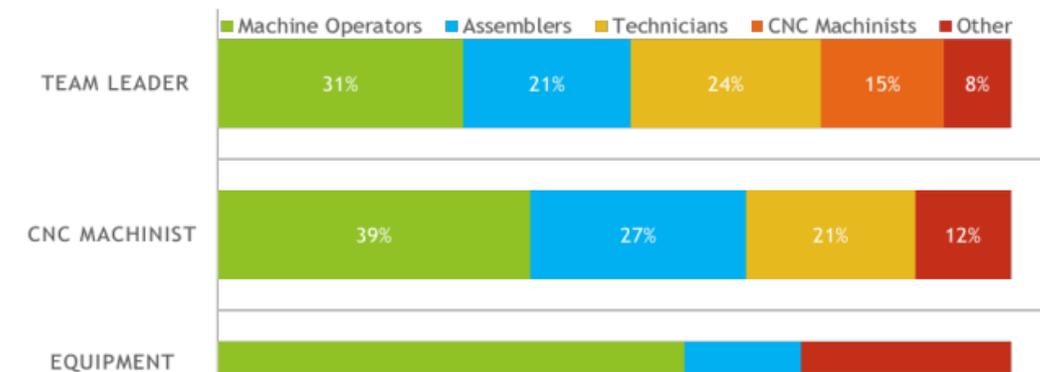


Figure 5. Middle-level critical jobs and their reported feeder positions



Brainstorm Discussion Points



1. WHAT DOES THIS DATA APPEAR TO TELL US?



2. BASED ON THIS DATA WHAT SHOULD BE OUR TOP PRIORITIES?



3. HOW CAN WE MEASURE SUCCESS IN IMPROVING THESE AREAS?